UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/966,081	10/01/2001	Richard C. Rose	2000-0573	5388

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EXAMINER
JACKSON, JAKIEDA R

ART UNIT	PAPER NUMBER
2655	

DATE MAILED: 01/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/966,081	ROSE ET AL.
	Examiner	Art Unit	
	Jakieda R. Jackson	2655	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>05 May 2005</u>.

2a)☒ This action is **FINAL.**   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-16</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-16</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Response to Amendment

1.   In response to the Office Action mailed May 9 2005, applicant submitted an

amendment filed on September 9, 2005, in which the applicant amended and requested

reconsideration with respect to **claims 1, 8 and 14**.

Response to Arguments

2.   Applicant argues that neither Digalakis et al., Asano et al. nor Reynar et al.

teaches generating a plurality of lattices for received speech utterances associated with

filling in a plurality of data fields. Applicant's arguments, see remarks pages 5-8, filed

September 9, 2005, with respect to claims 1, 8 and 14 of Digalakis et al. and Asano et

al. have been fully considered and are persuasive. The rejection of claims 1, 8 and 14

of Digalakis et al. and Asano et al. has been withdrawn.

However, applicant's arguments with respect to Reynar et al. have been fully

considered but they are not persuasive. Reynar et al. teach a speech recognition mode

that receives results and calls the results to the application *for input or entry to the*

document (column 8, lines 25-31).   Reynar et al. further teach that a lattice is a

structure that is well know to those skilled in the art, so a complete description will not

be given. Briefly, however, a lattice store words or phrases produced by a speech input

source in nodes. The lattices representing adjacent pieces of text can be combined into

a larger lattice through a process called concatenation (column 8, lines 32-63).

Applicant's further argues that Reynar et al. teach away from such application in

that their whole approach is focused on correcting speech recognition errors. However,

Reynar et al. encompasses applicant's invention. Therefore, applicant's arguments are

not persuasive. .

Applicant's also argue that the examiner ascertains whether motivation to

combine exists is only by a "preponderous of the evidence". That the legal standard of

"preponderous of evidence" requires the evidence to be more convincing than the

evidence which is offered in opposition to it. In sum, when the entire teachings of the

prior art are considered for their suggestive power with regards to combining with each

other, they do not suggest or provide motivation to blend their teachings. However,

according to the office action mailed May 9, 2005, the Examiner noted after each

motivation to combine, a column and paragraph in which the information could be

found. In that case, sufficient evidence has been provided.

Applicant further argues regarding Reynar et al. that that the very motivation to

combine articulated by the Examiner, i.e., the reason, feature or benefit that the

Examiner states should be brought into Reynar et al. from Thrasher et al. is already

found in Reynar et al. Therefore, incorporating the confidence score of Thrasher et al.

would be duplicative of the n-best alternatives list produced by Reynar et al. When

weighing the motivation value then of these two teachings, Applicants submit that the

preponderous of the evidence would lead away from concluding that one of the skill in

the art would combine these references. However, there is no negative teaching of a

confidence score found in Reynar et al. The Examiner merely provided further

clarification of how an n-best list is complied since Reynar et al. does not specifically

teach a confidence score. An n-best list can be determined by numerous factors, in

which Thrasher et al. better defines what a confidence score is. Therefore, the

additional reference of Thrasher was provided to give a thorough explanation.

Applicant's arguments that the reference leads away have been considered, but are not

persuasive.

Applicant's also argue that the fact that Thrasher et al. teach that a user will

select text for correction is instructive and teaches away from blending its teaching with

Reynar et al. Once again, Thrasher's invention encompasses applicant's invention.

Therefore, applicant's arguments are not persuasive.

Claim Rejections - 35 USC § 102

3.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4.   **Claims 1, 8 and 13-14** are rejected under 35 U.S.C. 102(e) as being anticipated

by Reynar et al. (U.S. Patent No. 6,581,033), hereinafter referenced as Reynar.

Regarding **claims 1, 8 and 14**, Reynar discloses a method, process and controller of rescoring the results of automatic speech recognition (ASR), hereinafter referenced as ASR method, comprising:

generating a plurality of lattices for received speech utterances with filling in a plurality of data fields (column 8, lines 25-63);

concatenating the plurality of lattices (concatenation process) into a single concatenated lattice (pieces combined into a larger lattice; column 8, lines 32-54); and

applying at least one language model (language model) to the single concatenated lattice in order to determine relationships between the plurality of lattices (column 8, lines 1-17 with lines 33-54).

Regarding **claim 13**, Reynar discloses the ASR method wherein the controller is a network server (figure 1).

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6.   **Claims 2, 6-7, 9, 11 and 16** are rejected under 35 U.S.C. 103(a) as being unpatentable over Reynar in view of Thrasher et al. (U.S. Publication No. 2002/0052742), hereinafter referenced as Thrasher.

Regarding **claim 2**, Reynar discloses the ASR method producing an n-best alternative list (column 8, lines 51-54), but does not specifically teach generating a confidence score.

Thrasher discloses the ASR method comprising:

generating a confidence score (confidence measure; column 3, paragraphs 0035 and 0036) after applying the at least one speech recognition model (language model; figure 2, element 110), to determine whether the plurality of lattices are acceptable (identify improperly identified, column 3, paragraphs 0035 and 0036).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Reynar's method such that it generates a confidence score, to identify which patterns are most likely to have been improperly identified by the recognizer (column 3, paragraph 0035).

Regarding **claims 6, 9 and 16**, Reynar discloses the ASR method, but lacks wherein the rescoring the automatic speech recognition is used in a mobile communications system.

Thrasher discloses the ASR method wherein the rescoring the automatic speech recognition is used in a mobile communications system, wireless communication (column 2, paragraph 0024), to relay information.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Reynar's method such that the ASR is used in a

mobile communications system, to provide the user with alternatives to the speech

recognition output provided by the engine (column 1, paragraph 0002).

Regarding **claims 7 and 11**, Reynar discloses the ARR method, but lacks

wherein rescoring the automatic speech recognition is used in a satellite

communications system.

Thrasher discloses the ASR method wherein rescoring the automatic speech

recognition is used in a satellite communications system (satellite dish; column 2,

paragraph 0022), to relay information.

Therefore, it would have been obvious to one of ordinary skill in the art at the

time the invention was made to modify Reynar's method such that the ASR is used in a

satellite communications system, to provide the user with alternatives to the speech

recognition output provided by the engine (column 1, paragraph 0002).

7.   **Claims 3-4** are rejected under 35 U.S.C. 103(a) as being unpatentable over

Reynar in view of Thrasher, as applied to claim 2, in further view of Waibel et al. (U.S.

Patent No. 5,712,957), hereinafter referenced as Waibel.

Regarding **claim 3**, Reynar in view of Thrasher, as applied to claim 2 above,

discloses the ASR method of rescoring the results of automatic speech recognition, but

lacks wherein the confidence score is compared to a predetermined value.

Waibel discloses the ASR method wherein the confidence score (confidence

score) is compared to a predetermined value (predetermined threshold value) in order

to determine whether to perform the automatic speech recognition process again (repeat again; column 1, lines 56-59), to avoid incorrect recognition.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Reynar in combination with Thrasher's method such that the confidence score is compared to a predetermined threshold as in Waibel, to repair misrecognition of speech (column 1, lines 9-12).

Regarding **claim 4**, Reynar in view of Thrasher, as applied to claim 2 above, discloses the ASR method, but lacks wherein the automatic speech recognition process is performed again if the confidence score is less than the predetermined value.

Waibel discloses the ASR method wherein the automatic speech recognition process is performed again if the confidence score is less than the predetermined value (until the score is above the threshold; column 1, lines 56-59), to avoid incorrect recognition.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Reynar in combination with Thrasher and Waibel's method invention wherein the automatic speech recognition process is performed again if the confidence score is less than the predetermined value as in Waibel, to repair misrecognition of speech (column 1, lines 9-12).

8.   **Claim 5** is rejected under 35 U.S.C. 103(a) as being unpatentable over Reynar in view of Morin et al. (USPN 6,411,927), hereinafter referenced as Morin.

Regarding **claim 5**, Reynar discloses the ASR method, but lacks wherein the rescoring is performed after a speech recognition model has been compensated to reflect acoustic environmental data transducer data.

Morin discloses the ASR method wherein the rescoring is performed after a speech recognition model (speech models; column 2, lines 1-10) has been compensated (figure 1, element 15) to reflect acoustic environmental data and transducer data (figure 1 with take into account the microphone and its associated acoustic environment; column 3, lines 28-35), for signal equalization.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Reynar's method wherein the rescoring is performed after a speech recognition model has been compensated to reflect acoustic environmental data and transducer data as in Morin, to obtain signal equalization for normalizing a time domain source signal to a target environment (column 1, lines 7-12).

9.   *Alternately* **Claim 5** is rejected under 35 U.S.C. 103(a) as being unpatentable

over Reynar in view of Flanagan et al. (USPN 5,737,485), hereinafter referenced as

Flanagan.

Regarding **claim 5**, Reynar discloses the ASR method, but lacks wherein the

rescoring is performed after a speech recognition model has been compensated to

reflect acoustic environmental data transducer data.

Flanagan discloses the ASR method wherein the rescoring is performed after a

speech recognition model (speech recognition) has been compensated to reflect

acoustic environmental data (compensate for environmental variations) and transducer

data (microphone; figure 1 with column 3, line 47 – column 4, line 4 and column 6, line

56 – column 7, line 6), to produce high "hands-free" identification scores.

Therefore, it would have been obvious to one of ordinary skill in the art at the

time the invention was made to modify Reynar's method wherein the rescoring is

performed after a speech recognition model has been compensated to reflect acoustic

environmental data and transducer data as in Flanagan, to produce high "hands-free"

identification scores, even under hostile condition of reverberation, and low SCNR's

caused by interfering noise.

10.   **Claim 5** is rejected under 35 U.S.C. 103(a) as being unpatentable over Reynar in

view of L'Esperance et al. (U.S. Publication No. 2002/0055844), hereinafter referenced

as L'Esperance.

Regarding **claim 5**, Reynar discloses the ASR method, but lacks wherein the

rescoring is performed after a speech recognition model has been compensated to

reflect acoustic environmental data transducer data.

L'Esperance discloses the ASR method wherein the rescoring (obtains a score

for each model) is performed after a speech recognition model (speech recognition)

has been compensated to reflect acoustic environmental data (various acoustic

environments) and transducer data (figure 1 with column 3, paragraphs 0037-0041 and

column 1, paragraph 0013), to provide essentially the same level of accuracy.

Therefore, it would have been obvious to one of ordinary skill in the art at the

time the invention was made to modify Reynar's method wherein the rescoring is

performed after a speech recognition model has been compensated to reflect acoustic

environmental data and transducer data as in L'Esperance, to train models to operate

in different situations/circumstances (column 3, paragraph 0038).

11.   **Claim 10** is rejected under 35 U.S.C. 103(a) as being unpatentable over Reynar

in view of Pan et al. (U.S. Patent No. 6,304,844), hereinafter referenced as Pan.

Regarding **claim 10**, Reynar discloses the ASR method, but lacks wherein the

speech utterances are received from a personal digital assistant (PDA).

Pan discloses the ASR method wherein the speech utterances are received from

a personal digital assistant (column 12, lines 47-50 and column 13, lines 1-13), to avoid

redesign or reprogramming of the DSP.

Therefore, it would have been obvious to one of ordinary skill in the art at the

time the invention was made to modify Reynar's method wherein the speech

utterances are received from a PDA as in Pan, thus allowing easy, quick, and

inexpensive integration, avoiding redesign or reprogramming of the DSP.

12.   **Claim 15** is rejected under 35 U.S.C. 103(a) as being unpatentable over Reynar

in view of Waibel.

Regarding **claim 15**, Reynar discloses the ASR method of rescoring the results

of automatic speech recognition, but lacks comprising a fourth section that determines

whether an automatic speech recognition process should be performed again.

Waibel discloses the ASR method comprising a fourth section that determines

whether to perform the automatic speech recognition process again (repeat again;

column 1, lines 56-59), to avoid incorrect recognition.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Reynar's method such that it determines whether an automatic speech recognition process should be performed again, to repair misrecognition of speech (column 1, lines 9-12).

Conclusion

13.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.
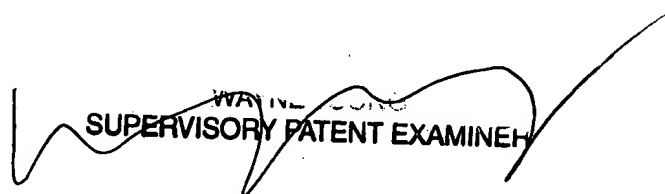
14.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jakieda R. Jackson whose telephone number is 571.272.7619. The examiner can normally be reached on Monday through Friday from 7:30 a.m. to 5:00p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne Young can be reached on 571.272.7582. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JRJ
January 19, 2006

SUPERVISORY PATENT EXAMINER

WAYNE YOUNG
SUPERVISORY PATENT EXAMINER